Garment Appearance Inventors: HU et al. Atty Docket No.: 401088/M&C Leydig, Voit & Mayer, Ltd. 202-737-6770

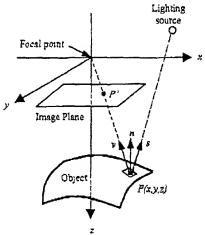


Figure 1 Surface Model and Observation System

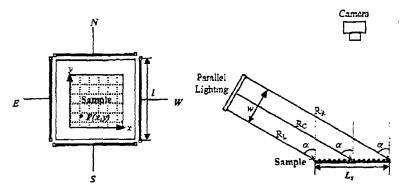


Figure 2 Lighting System

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202-437-6770

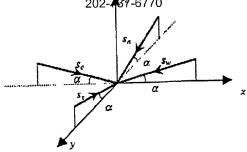


Fig.3 Four direction lighting vectors

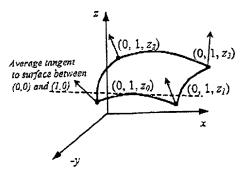


Fig.4 Surface patch and normal vectors

Approximation to surface between points (0,0) and (1,0) can be made by using
the average tangent line if points are sufficiently close.

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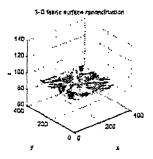
0	o 2 •	٥	o	3.	2	٥	•2	• 3
0	0 1 •	•	0	2.	1.	٥	•1	• 2
2	1 .	•	•	0	٥	٥	0	o
•	o 1 •	o	c	2 •	ı•	٥	• 1	a 2
٥	c 2 •	o	٥	3	2	q	2	3
	(a)					(b)		

Figure 5 Illustration of depth conversion order for points on the object's surface.

- (a) Initially, z values along the axes are calculated which is illustrated numerically.
- (b) After z values are established along the axes, z values are computed for points in each quadrant in column major order as illustrated.







- (a) Camera Acquired Fabric Image
- (b) Revealed Surface Image
- (c) 3-D Image of Fabric

Figure 6 Fabric Surface Reconstruction

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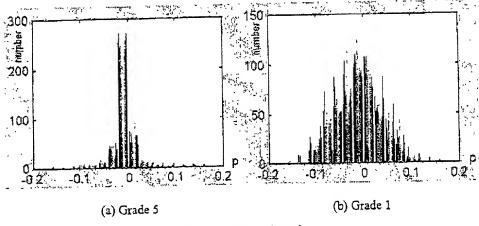


Figure 7 Distribution of p

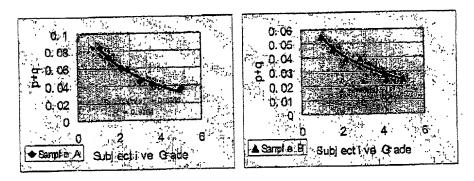
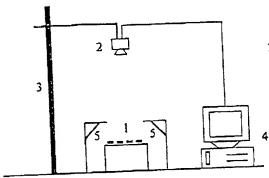


Figure 8

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- Lighting box
 Digital camera
- Stage 3.
- Personal computer (Frame grabber inside)
- 5. Parallel Lighting

Figure 9